DOCKET NO: 290074US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:	
THOMAS OSTROWSKI, ET AL.	:	EXAMINER: KEYS, ROSALYND
SERIAL NO: 10/578,874	:	
FILED: MAY 11, 2006	:	GROUP ART UNIT: 1621
FOR: METHOD FOR PRODUCING POLYETHER ALCOHOLS	:	

REPLY BRIEF UNDER 37 CFR § 41.41

This Reply Brief is hereby timely filed September 24, 2009, with no extensions of time, in response to the Examiner's Answer dated July 24, 2009. The remarks and discussion herein specifically respond to the Examiner's clarification of the specific disclosures in O'Connor (U.S. Patent 6,359,101 B1, issued March 19, 2002) upon which the Examiner relies as basis for the appealed rejections of all Applicant's claims under 35 U.S.C. § 102.

STATUS OF CLAIMS

Claims 1-11 are pending in the Application..

Claims 1-11 stand finally rejected under 35 U.S.C. § 102 as anticipated by O'Connor.

Claims 1-11 are appealed.

The final rejection of Claims 1-11 under 35 U.S.C. § 102 as anticipated by O'Connor. appealed.

GROUNDS OF REJECTION TO BE REVIEWED

Claims 1-11 stand finally rejected under 35 U.S.C. 102(b) as anticipated by O'Connor (O'Connor, et al., U.S. Patent 6,359,101, issued March 19, 2002).

ARGUMENT

Rejection of Claims 1-11 under 35 U.S.C. § 102(b) over O'Connor

The appealed rejections under 35 U.S.C. § 102 should not be affirmed unless O'Connor describes every element of the process Applicant claims. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). O'Connor does not describe the process claimed. Invitations to experiment with no more than a possibility of success cannot cure a prior art disclosure which does not describe the claimed process. "[T]o anticipate a claimed invention, a prior art reference must enable one of ordinary skill in the art to make the invention without undue experimentation." *Impax Labs., Inc. v. Aventis Pharm. Inc.*, 545 F.3d 1312, 1314 (Fed. Cir. 2008).

It is not enough for a reference to suggest that persons having ordinary skill in the art could or should be able to initiate a continuous process in the same manner that O'Connor's batch processes are initiated and could or should be able to stabilize and sustain a continuous process thereafter to anticipate Applicant's claimed continuous process. To sustain a rejection under 35 U.S.C. § 102, O'Connor must describe the claimed process for continuous preparation of polyether alcohols and each and every initiating, metering, timing, filling, and withdrawing aspect thereof.

Claim 1 is directed to a "process for the continuous preparation of polyether alcohols by reaction of alkylene oxides with H-functional starter substances in the presence of DMC catalysts" (Claims Appendix, Claim 1). Using DMC catalysts, it is not only difficult to initiate the reaction between the alkylene oxides and the H-functional starter substances but it is also difficult to establish steady-state conditions in the reactor (Spec., p. 2, ll. 15-16). The increasing heat of the exothermic reaction is thought to poison, damage or otherwise stress DMC activity and either stop the reaction or prevent the reaction from proceeding

continuously to completion (Spec., p. 2, ll. 18-29). It is most difficult to establish steady-state conditions in processes for the continuous preparation of polyether alcohols. Accordingly, it is not enough for anticipation of Applicant's claimed continuous process for O'Connor to teach persons having ordinary skill in the art how to initiate a batch process for preparation of polyether alcohol and merely suggest that continuous processes may be initiated in the same manner. O'Connor does not describe a process for continuous preparation of polyether alcohols or teach how to sustain one. O'Connor merely suggests that persons having ordinary skill in the art should be able to do it. On the other hand, Applicant's Specification instructs that success is not readily achieved and could not readily be expected without undue experimentation. The problems to be considered and solved are many. Applicant solved the DMC catalyst deactivation problem and enables one skilled in the art to initiate and sustain a process the continuous preparation of polyether alcohols using a DMC catalyst (Spec., p. 2, ll. 31-35).

The problems are solved in the beginning of the continuous preparation process by (Spec., p. 2, l. 37, to p. 3, l. 20):

(a) placing initial charge material and DMC catalyst into a reactor;

(b) metering the rate of alkylene oxide addition to the reactor such that the rate required to maintain continuous operation of the reactor is reached from 100 to 3000 seconds of start of the reaction;

(c) metering the rate of starter substance addition to the reactor during or after step (b) such that the rate required to maintain continuous operation of the reactor is reached from 5 to 500 seconds of step (b); and

(d) continuously withdrawing product from the reactor when filled while metering the addition of starter substance, alkylene oxide, and DMC catalyst to the reactor in

amounts sufficient to maintain the fill level of the reactor and its continuous operation.

O'Connor describes nothing of the kind. The claimed continuous process is initiated and maintained by controlling the time, rate, and order for adding alkylene oxide, starter substance, and DMC catalyst and the rate of product withdrawal as directed.

The Examiner supports the rejection by repeating, "O'Connor et al teach the instant invention (see entire disclosure, in particular column 6, lines 19-53; column 7, line 10 to column 15, line 48; note (3) under Table 3; and Table 6)" (Examiner's Answer (Ans, p. 3). Now, however, the Examiner has explained the rejection.

First, the Examiner appears to concede that O'Connor never performed a process for the continuous preparation of polyether alcohols using a DMC catalyst (Ans., pp. 4-5, bridging ¶). Rather, the Examiner relies on O'Connor's prophetic suggestions that processes for the continuous preparation of polyether alcohols using a DMC catalyst could or should be initiated in the same manner as O'Connor did for its short-stopped test batches. The Examiner cites O'Connor's teachings at column 10, lines 31-38, and column 14, lines 26-32 and 45-50. At column 10, lines 31-38, O'Connor speculates that portions of the starters "may be initially added with the DMC catalyst before continuously adding epoxide and the remainder of the starter" and "after the polyol intermediate is formed, compounds (i) to (vii) or conventional starter material may be added" as desired. At column 14, lines 26-32, O'Connor suggests that its prophetic process is "an improvement over the patented ARCO continuous process technology" and that "additional DMC catalyst, propylene oxide, water or propylene glycol could be fed into the reactor continuously while the product is continuously removed" (emphasis added). At column 14, lines 45-50, O'Connor suggests, "With more active diols . . . a 1 reactor CSTR (Continuous Stirred Tank Reactor) process is possible. Initiate, then feed PO, catalyst and starter while simultaneously removing product" (emphasis

added). Applicant respectfully suggests that anticipation is not, and should not be, based on the possibility of success.

The Examiner acknowledges that O'Connor's teaching is based entirely on experiments involving single reactor batch processes (Ans., p. 5, 1st full ¶). Nevertheless, to support the present rejection under 35 U.S.C. § 102 over O'Connor, the Examiner argues (Ans., p. 5, 2nd full ¶; emphasis added):

> In the instant case, O'Connor teaches that their invention is applicable to batch as well as continuous processes (column 3, lines 49-56). See also the claims, wherein O'Connor claims both continuous processes (claims 1-9 and 12-20) as well a [sic, as] batch processes (see claims 23 and 26).

Applicant's are confused. O'Connor appears to be speculating. O'Connor does not describe any such continuous process and most certainly would not have enabled persons skilled in the art to make and use the same without undue experimentation.

In its Appeal Brief, Applicant asked where O'Connor describes: b) metering in alkylene oxide so that the metering rate which is maintained for continuous operation of the reactor is reached in a time of from 100 to 3000 seconds; c) metering in starter substance during or after step b) so that the metering rate which is maintained for continuous operation of the reactor is reached in a time of from 5 to 500 seconds; and d) metering in alkylene oxide and starter substance in amounts sufficient to fill the reactor while withdrawing product and metering in DMC catalyst in amounts necessary for continuous operation of the reactor. The Examiner responded that: (1) O'Connor's invention is applicable to batch as well as continuous processes; (2) data in O'Connor's Tables 1-6 are applicable to batch as well as continuous processes; and (3) "the ability to control exotherm and achieve steady state conditions by PO addition should be applicable for batch and continuous processes" (Ans., p. 6, 1st full ¶; emphasis added). Anticipation is not established by allegations that an invention should be "applicable," data disclosed should be "applicable," and "the ability to control exotherm and achieve steady state conditions by PO addition should be applicable for batch

and continuous processes" (Ans., p. 6, 1st full ¶; emphasis added). Anticipation is not based on possibilities. Either the invention is described by O'Connor or it is not. Anticipation under 35 U.S.C. § 102 is a question of fact. *In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991).

When O'Connor's disclosure was challenged as speculation and possibilities, the Examiner simply responded that "O'Connor is applicable to both batch and continuous processes" and that O'Connor's allegations that its process is an improvement over the patented ARCO continuous process technology is all that is required to anticipate the continuous process Applicant claims and enable persons having ordinary skill in the art to make and use the same (Ans., p. 7, 2nd full ¶). The teaching in Applicant's Specification as a whole refutes the Examiner's argument.

Applicant's Specification teaches that the problems persons having ordinary skill in the art would have faced in their efforts to prepare polyether alcohols by a continuous process using a DMC are many and difficult to solve. The solutions are not found in statements that O'Connor's process is applicable to both batch and continuous processes, in allegations that O'Connor's process is an improvement over the patented ARCO continuous process technology, and in arguments that nothing more is required to describe the continuous process Applicant claims and enable persons having ordinary skill in the art to make and use the same (Ans., p. 7, 2nd full ¶).

Finally, the Examiner finds that persons having ordinary skill in the art would have attempted to apply O'Connor's teaching with respect to Single Reactor Batch Processes (O'Connor, col. 21-24, Table 6 and Examples 6, 7, and 8) to continuous processes, and in so doing, would inherently have used Applicant's claimed process when successfully initiating and sustaining a continuous process and would inherently have failed to use Applicant's claimed process when unsuccessfully initiating and sustaining a continuous process.

Reviewing the information reported in Table 6 of O'Connor, the Examiner finds (Ans. pp. 7-8, bridging ¶):

> These results are an indication that O'Connor was able to quickly achieve steady-state without damage to the catalyst (see column 13, lines 14-40). Thus, based upon these results the Examiner concluded that the claimed metering rates were inherently taught by O'Connor. Where Appellants claim a process and the process of the prior art is the same as that of the claim but a certain characteristic is not explicitly disclosed by the reference does not render the process patentable. Thus the claiming of a new or unknown property which is inherently present in the prior art process does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1255 n.4 . . . (CCPA 1977).

The defect in the Examiner's finding of inherency is the fact that the prior art processes from which the information reported in O'Connor's Table 6 is drawn are not the same as Applicant's claimed process for continuous preparation of polyether alcohols. The information in O'Connor's Table 6 is based on Single Reactor Batch Processes of Examples 7 and 8 wherein:

(1) all the PO initially added to the reactor was consumed 50 minutes after heating started, additional PO was added, and the reaction proceeded to completion in 3 hours (O'Connor, col. 23, Example 7); and

(2) all the initially charged PO added to the reactor was consumed in 77 minutes, additional PO was added, the reaction proceeded to completion in 15 minutes, and a last PO charge was consumed in another 1 hour (O'Connor, cols. 23-24, Example 8).

The information reported in O'Connor's Table 6 is based on single reactor batch, short term completion processes which are not processes for continuous preparation of polyether alcohols within the scope of Applicant claims. Accordingly, the success or failure initiating and completing the batch, short-stopped processes reported in O'Connor's Examples 7 and 8 and the steps, elements, and parameters thereof may not be equated to any success persons having ordinary skill in the art might could or might expect in initiating and sustaining a

process for continuous preparation of polyether alcohols within the scope of Applicant claims. Accordingly, there is no credible basis for the Examiner's findings that the metering times and amounts of alkylene oxide, starter substance, DMC catalyst, and product withdrawal for the claimed process for the continuous preparation of polyether alcohols are inherently described by O'Connor.

In re Oelrich, 666 F.2d 578, 581 (CCPA 1981), teaches, "Inherency may not be established by probabilities or possibilities. Something that is inherent must inevitably be the result each and every time." The fact that a certain result or characteristic may occur or may be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). An invitation to experiment, the apparent basis for the Examiner's finding of inherency in this case, is not an inherent disclosure. *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004). Therefore, to the extent the Examiner's rejection of Applicant's claims under 35 U.S.C. § 102 is based on a finding that O'Connor inherency describes a continuous process Applicant claims, the rejection cannot stand and should be reversed.

O'Connor's Table 1 reports data obtained from preliminary screening experiments designed to determine what level of DMC catalyst concentration and which H-functional starters are most effective for initiating a reaction of alkylene oxide with an H-functional starter substance in the presence of a DMC catalyst. Time to Initiation was determined. O'Connor did not ever continuously prepare and withdraw polyether alcohol from a filled

reactor (O'Connor, col. 15, l. 62, to col. 16, l. 56, Example 1 and Table 1). With respect to Tables 2-6 O'Connor states (O'Connor, col. 6, ll. 41-52; emphasis added):

> The data in Table[s] 2-6 are based on the procedure of adding starter, PO [propylene oxide] and catalyst initially . . . with both the starter and PO initial levels varying as described in the table[s]. The reactor was rapidly heated . . . and the initiation time is defined as the time from 100°C. to polymerization initiation. Since we were exploring conditions to speed initiation, generally no additional PO was added to the reactor once the initial charge was consumed.

O'Connor neither expressly nor inherently describes the claimed process for continuous preparation of polyether alcohols.

O'Connor appears to be concerned with factors relating to the difficulty with which the reaction between the alkylene oxides and the H-functional starter substances is initiated in the presence of a DMC catalyst. O'Connor is concerned with initiating a reaction (O'Connor, col. 7, lines 31-36; col. 10, l. 65, to col. 11, l. 7; col. 11, ll. 65-67). O'Connor appears to agree that there are many problems peculiar to continuous processes, because O'Connor states (O'Connor, col. 13, ll. 11-13), "In some instances the reaction stopped before all the PO was consumed." O'Connor recognized that an uncontrollable exothermic reactions often occur and resultant catalyst deactivation is difficult to control (O'Connor, col. 13, ll. 17-40).

Nevertheless, the Examiner returns to O'Connor's teaching at column 14, lines 26-50 again and again. There O'Connor teaches that its process "is an improvement over the patented ARCO continuous process technology" (O'Connor, col. 14, ll. 26-27). O'Connor generally teaches that, by using highly reactive starter materials, "the catalyst can be activated and then additional DMC catalyst, propylene oxide, water or propylene glycol could be fed into the reactor continuously while the product is continuously removed" (O'Connor, col. 14, ll. 27-36). While O'Connor suggests the possibility of employing highly reactive starter materials in a process for continuous preparation of polyether alcohols, O'Connor does not teach persons having ordinary skill in the art how to carry out and sustain such a continuous process. Undue experimentation would have been required to determine what the

steady-state conditions are and how to attain them. O'Connor's purported suggestion that the steady-state conditions required to sustain a process for the continuous preparation of polyether alcohols from alkylene oxide and H-functional starter substances in the presence of a DMC catalyst are within the ordinary skill of the artisan to determine with or without undue experimentation is not sufficient basis to find that the inventive process Applicant claims is anticipated. The appealed rejections should be reversed.

CONCLUSION

For the reasons stated, the Final Rejections of Claims 1-11 under 35 U.S.C. § 102(b) as anticipated by O'Connor should be reversed.

Respectfully submitted,

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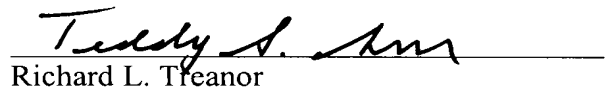

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